

Date: Monday, 11/27/2006 10:06:04 AM
 User: Kim Johnston

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: SUPPORT (412 AFT)
Job Number	: 29705		
Estimate Number	: 11060		
P.O. Number	: N/A	Part Number	: D28961
This Issue	: 11/27/2006 S.O. No. N/A	Drawing Number	: D2896 REV A4
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: N/A Type : MACHINED PARTS	Drawing Revision	: A4
Previous Run	: 27266	Material	: N/A
Written By	: <u>JA 06/11/27</u>	Due Date	: 12/20/2006
Checked & Approved By	: <u>JA 06/11/27</u>	Qty:	8 Um: Each
Comment	: Est: B 02 11.26 Reformat; Added P/O; Added mask hole KJ		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	PG	PURCHASING
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Comment: PURCHASING

Issue P/O: 2578

C20611128

(8)

Description: D6104-011

Material: 17-4 PH SS (AMS 5643 OR AISI 630) as per Dwg D6104

Material release note required.

Blank size makes (2) D2896-1

2.0	D6104011	17-4 SS Roundbar 6.50"OD
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 8.0000 Each(s)

Support B29705

BG 06.12.17

(8)

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Recieve & Inspect for Transit Damage

Ensure Material Release Note is attached

B06 12/08 (8)

4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
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Comment: MORI SEIKI CNC LATHE LARGE

Turn blank for Haas as per Folio FA167

BG 06.12.17

(8)

5.0	QC1	INSPECT ALL DIM TO DIM SHEET
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Comment: INSPECT ALL DIM TO DIM SHEET

BG 06.12.17

(8)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 11/27/2006 10:06:04 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SUPPORT (412 AFT)

Job Number: 29705

Part Number: D28961

Job Number:



Seq. #: Machine Or Operation: Description :

6.0

HAAS1

HAAS CNC VERTICAL MACHINING #1



Comment: BAND SAW

Machine as per Folio FA167

Tumble & Deburr

W/ J.G 06/12/17

8 makes (16)

7.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

W/ J.G 06/12/17

(12) (PN)

8.0

QC8

SECOND CHECK



Comment: SECOND CHECK

W/ J.G 07/01/03

12

9.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Mask Ø0.625" hole prior to paint

W/ J.G 07.01.03

12

10.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref. 4.3.5/2) as per QSI 005 4.3

Prime inside bore of support
W/ J.G 07.01.03

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT

Inspect Primer

12

12.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

W/ J.G 07.01.04

13.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

W/ J.G 07.01.05

Job Completion





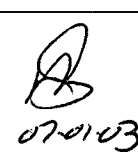


W 07.06.05

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D2896-1 PAR #: N/A Fault Category: CNC NCR: Yes No DQA: LA Date: 07.01.05
 QA: N/C Closed: LA Date: 07.01.05

NCR: <u>29705</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06.12.18	6.0	2 parts I.D. with previous B.H. # was not changed in program. Human error.		Add part to WO 27266. No replace on this WO.	J.G. 06/12/18	2 06.12.18		06.12.18
	7.0	4 parts scrapped		out of tolerance destroy	 07.01.03	 07.01.03	 07.01.03	 07.01.03

NOTE: Date & initial all entries



DART AEROSPACE LTD				Work Order: 29705	
Description: Support				Part Number: D2896-1	
Inspection Dwg: D2896 Rev. A4				Page 1 of 1	

Inspect dimensions highlighted on inspection sheet drawing D2896 Rev A4/DSK080 Rev A and record below:

				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
Lathe Section								MS	06/12/14
A	3.480	3.485		3.485	3.485	3.485	3.485		
B	3.990	4.010		4.000	4.000	4.000	3.995		
C	3.825	3.845		3.832	3.832	3.832	3.832		
D	0.718	0.738		.728	.728	.724	.724		
E	0.090	0.110		.104	.105	.103	.104		
F	3.705	3.725		3.715	3.715	3.715	3.715		
G	1.360	1.380		1.370	1.370	1.368	1.365		
H	1.250	1.260		1.260	1.260	1.260	1.260		
I	6.490	6.510		6.497	6.499	6.498	6.498		
J	0.022	0.042		.032	.032	.032	.032		
K	0.240	0.260				.250	.250		
L	0.107	0.127		.109	.109	.107	.107		
M									
HAAS Section									
AA	2.152	2.172		2.162	2.162	2.162	2.162		
AB	2.340	2.360		2.344	2.360	2.360	2.360		
AC	3.550	3.560		3.555	3.556	3.558	3.557		
AD	3.770	3.790		3.780	3.785	3.782	3.788		
AE	0.065 x 0.315	0.085 x 0.335		0.075 x 0.335	0.075 x 0.320	0.075 x 0.320	0.075 x 0.320		
AF	1.42	1.48		1.451	1.452	1.441	1.448		
AG	0.833	0.853		0.845	0.845	0.846	0.846		
AH	0.240	0.260		0.250	0.250	0.250	0.250		
AI	0.261	0.266	DT8707	0.261	0.261	0.261	0.261		
AJ	0.189	0.194	DT8706	0.190	0.189	0.189	0.189		
AK	1.990	2.010		2.000	2.000	2.000	2.000		
AL	0.625	0.630	DT8709	0.626	0.628	0.628	0.628		
AM	101.75	105.75	DT8697	-	-	-	-		
AN	0.053	0.073		0.063	0.063	0.063	0.063		
AO	0.927	0.947		0.946	0.949	0.949	0.946		
AP				0.008	0.000	0.002	0.001		
AQ				0.007	0.003	0.003	0.0035		
Accept/Reject									

Measured by:	MS / 2.6 / 1.5.6 / 1.5.6	Audited by:	MS
Date:	06/12/14	Date:	07/10/103

Rev	Date	Change	Revised by	Approved
A	02.12.13	New Issue	KJ/RF	
B	04.05.27	Dimension AE changed	KJ/RF	

DART AEROSPACE LTD		Work Order:	29705
Description: Support		Part Number:	D2896-1
Inspection Dwg: D2896 Rev. A4		Page 1 of 1	

Inspect dimensions highlighted on inspection sheet drawing D2896 Rev A4/DSK080 Rev A and record below:

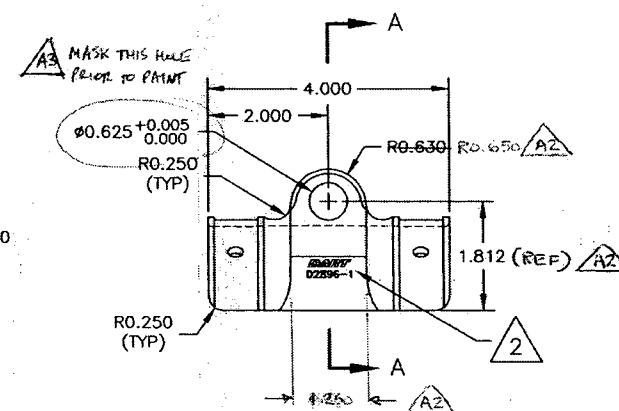
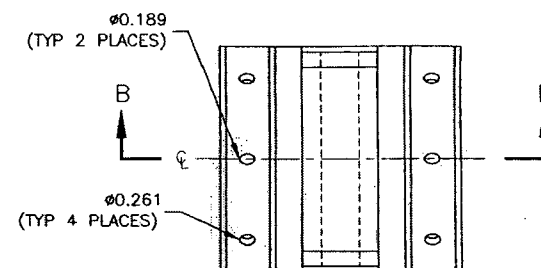
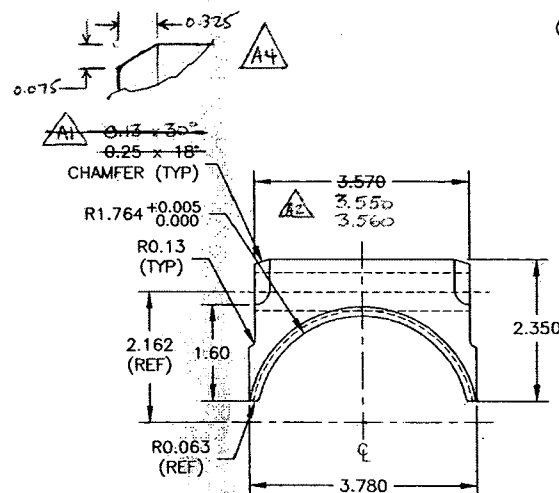
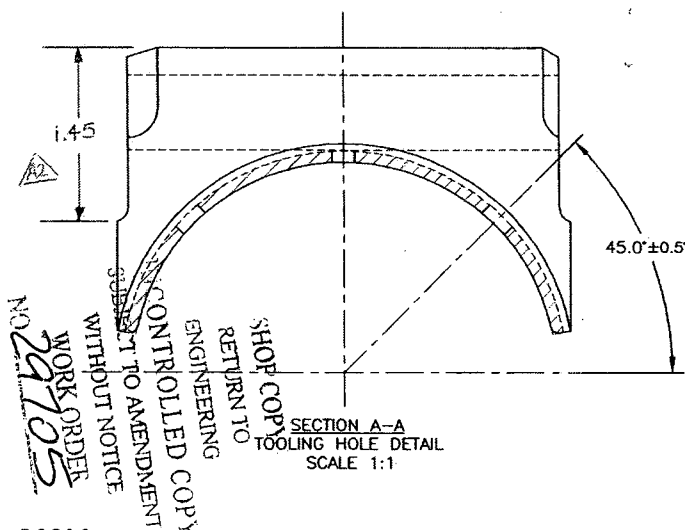
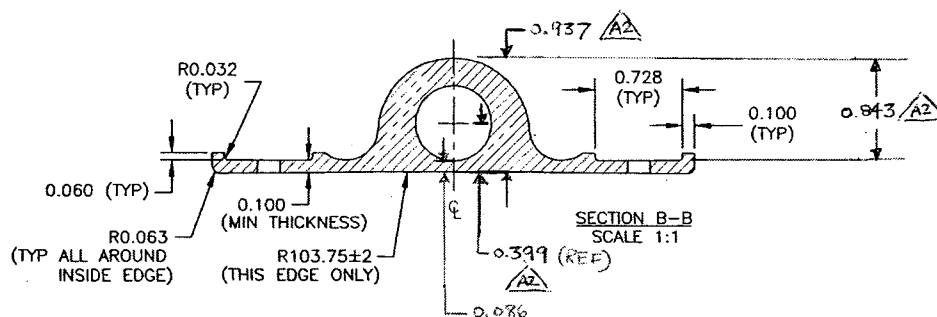
				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	#5	#6	#7	#8	By	Date
Lathe Section								MS	
A	3.480	3.485		3.485	3.485	3.485	3.485		
B	3.990	4.010		3.994	3.994	3.994	3.994		
C	3.825	3.845		3.832	3.832	3.832	3.832		
D	0.718	0.738		.726	.724	.725	.725		
E	0.090	0.110		.105	.104	.104	.1		
F	3.705	3.725		3.715	3.713	3.713	3.713		
G	1.360	1.380		1.370	1.370	1.370	1.370		
H	1.250	1.260		1.260	1.260	1.260	1.260		
I	6.490	6.510		6.498	6.498	6.498	6.495		
J	0.022	0.042		.032	.032	.032	.032		
K	0.240	0.260		.250	.250	.250	.250		
L	0.107	0.127		.108	.108	.108	.108		
M									
HAAS Section									
AA	2.152	2.172		2.162	2.162	2.162			
AB	2.340	2.360		2.358	2.358	2.358			
AC	3.550	3.560		3.559	3.559	3.559			
AD	3.770	3.790		3.784	3.783	3.784			
AE	0.065 x 0.315	0.085 x 0.335		0.075 x .325	0.075 x .325	0.075 x .325			
AF	1.42	1.48		1.462	1.462	1.462			
AG	0.833	0.853		0.849	0.848	0.849			
AH	0.240	0.260		0.250	0.250	0.250			
AI	0.261	0.266	DT8707	0.261	0.261	0.261			
AJ	0.189	0.194	DT8706	0.190	0.190	0.190			
AK	1.990	2.010		2.009	2.008	2.009			
AL	0.625	0.630	DT8709	0.626	0.626	0.626			
AM	101.75	105.75	DT8697	—	—	—			
AN	0.053	0.073		0.063	0.063	0.063			
AO	0.927	0.947		0.945	0.946	0.946			
AP									
AQ									
Accept/Reject									

Measured by:	MS / RG / J.E.
Date:	06/12/14 06/12/14

Audited by:	mk
Date:	07/01/03

Rev	Date	Change	Revised by	Approved
A	02.12.13	New Issue	KJ/RF	
B	04.05.27	Dimension AE changed	KJ/RF	

RELEASED
01-11-13



D2896-1

- 1) MATERIAL: 17-4 PH STAINLESS STEEL
HEAT TREAT TO H900 CONDITION
(900°F FOR 1 HR, AIR COOL)
MIN UTS = 170 KSI (38 HRC)
- 2) IDENTIFY WITH DART LOGO AND PART NUMBER IN THIS AREA
WITH 0.125 HIGH LETTERING 0.010-0.020 DEEP
- 3) BREAK ALL UNMARKED SHARP EDGES 0.010 TO 0.020
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) FINISH: POWDER COAT WHITE (REF 4.3.5.2) PER DART QSI 005 4.3
- 6) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 7) ALL DIMENSIONS ARE IN INCHES

D2896-1

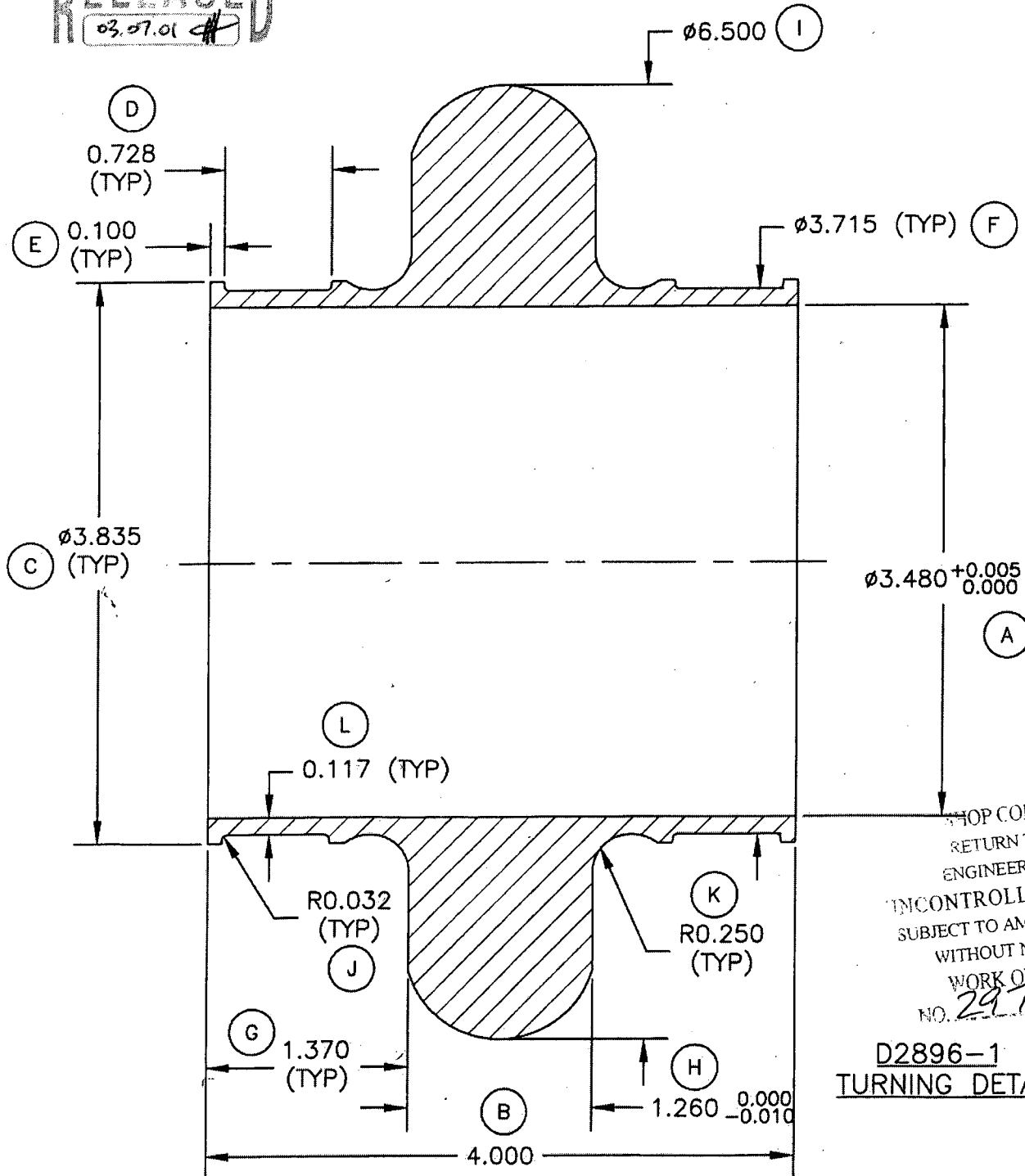
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A4	CP	04.05.14	CORRECT CHAMFER	COPY LOGO
A3	CP	02.11.20	ADD MASKING NOTE	
A2	CP	02.06.04	ADD DIMS, CHANGE RAD	
A1		01.11.13	CHANGED CHAMFER	
A		01.10.19	NEW ISSUE	
DESIGN	CP	DRAWN BY	CP	
CHECKED	CP	APPROVED	CP	
DATE	01.10.19			
			DART DART AEROSPACE LTD. WARRICKSLEY, ONTARIO, CANADA	REV. A
			DRAWING NO. D2896	SHEET 1 OF 1
			TITLE SUPPORT	SCALE 1:2

DART

DESIGN [Signature]	DRAWN BY [Signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. DSK 080	REV. A SHEET 1 OF 1
DATE 03.05.20		TITLE TURNING DETAIL FOR D2896-1	SCALE 1:1
A	03.05.20	NEW ISSUE	

RELEASED
03.07.01 [Signature]

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 29705

D2896-1
TURNING DETAIL

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VALBRUNA
SLATER STAINLESS, INC.
 2400 Taylor Street West, P.O. Box 630
 Fort Wayne, Indiana USA 46801
 Phone: 260-434-2892 Fax: 260-434-2805

Product Certification Report

Report Number: **4170580**

Certified on Apr 26, 2006 Page 1 of 2

Order I.D. 0502330 001		Order Date 11/07/05		Commodity Code 15003	
Dim 1 6.5000	Dim 2 .0000	Dim 3 .0000	Heat I.D. 041773	Customer I.D. 001117	Customer Purchase Order 10-20957
Product Shape Rounds			Product Surface HR & Rough Turned		Customer Grade 17-4
Length (Inches) 120.000 Min. 168.000 Max.			Bill of Lading # 402970	Weight	

Ship To
 CASTLE METALS
 26800 MILES ROAD
 BEDFORD HEIGHTS, OH 44146

Sold To
 VALBRUNA STAINLESS, INC.
 2400 TAYLOR STREET WEST
 FORT WAYNE, IN 46802

Lifts: 0017

AISI 630
 UNS S17400
 AMS 2303E

CONDITION A
 ASTM 564-04
 AMS 56430

3174-02 REV 23 DTD 11/15/012
 ASMESA 564 01 ED 2002 ADD

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	N	Cb	Ta	Cb+Ta
.042	.51	.019	.021	.36	15.76	4.44	.16	3.28	.04	.36	.010	.37

HB
 337

TENSILE PROPERTIES CAPABILITY

HB	TS (PSI)	2%YS (PSI)	%EL(2")	%RA	AGE(F)
409	197600	182100	15.0	53.3	900

MAGNETIC PARTICLE TEST

FREQ SEV
 AVG .00 .00

MACRO ASTM E340/E381

MACRO
 OK
 OK
 OK

CASTLE METALS - CIV
 DATE REC'D.....
 REC'D BY.....
 I.A.C. #.....
 APPR'D BY.....

PERCENT FERRITE

% FERRITE
 AVG 1.5

Reduction ratio 5 To 1 Min.

Electric Furnace melted; AOD refined.

Ultrasonic test OK.

We certify that the contents of this report are correct and that all operations performed by our company or subcontractors are in compliance with material specifications and the ASME Boiler & Pressure Code, Section III, Section III, Subsection NCA-3800, 2001 edition, 02 Addenda
 Chemical testing performed to one or several of the following ASTM methods: E415, E572, E1019, E1085, E1036
 No mercury or low melting alloy contamination. No weld repair.
 Material melted and manufactured in the United States.
 Material conforms to listed specifications.

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal law, Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info.

I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

Dennis Hackett
 Dennis Hackett



VALBRUNA
SLATER STAINLESS, INC.
2400 Taylor Street West, P.O. Box 630
Fort Wayne, Indiana USA 46801
Phone: 260-434-2882 Fax: 260-434-2905

Product Certification Report

Report Number: **4170580**

Certified on Apr 26, 2006 Page 2 of 2

Order I.D. 0502330 001		Order Date 11/07/05		Commodity Code 15003	
Dim 1 6.5000	Dim 2 .0000	Dim 3 .0000	Heat I.D. 041773	Customer I.D. 001117	Customer Purchase Order 10-20957
Product Shape Rounds			Product Surface HR & Rough Turned		Customer Grade 17-4
Length (inches) 120.000 Min. 168.000 Max.			Bill of Lading # 402970	Weight	

Ship To
CASTLE METALS
26800 MILES ROAD
BEDFORD HEIGHTS, OH 44146

Sold To
VALBRUNA STAINLESS, INC.
2400 TAYLOR STREET WEST
FORT WAYNE, IN 46802

Quality system is compliant with ISO 9001:2000. Produced in accordance with EN 10204 3.1B.

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Manager Laboratory Services

Dennis Hacken